

AMENDMENTS TO THE CLAIMS:

1. (Currently Amended) A substrate structure which is a precursor to an electron source, ~~and on which an electron-emitting device of the electron source is to be disposed~~, comprising:

a substrate; and

an insulating material film provided on said substrate,

wherein said insulating material film includes a metallic oxide and has a vacancy, and said insulating material film has a surface on which an electron-emitting device of the electron source is to be disposed.

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2. (Previously Presented) The substrate structure according to claim 1, wherein said metallic oxide is an electronically conductive oxide.

3. (Previously Presented) The substrate structure according to claim 1, wherein said metallic oxide is SiO₂.

4. (Previously Presented) The substrate structure according to any one of claims 1 to 3, wherein said insulating material film has a ratio of said vacancy in its cross section within the range of 5% to 10%.

5. (Previously Presented) The substrate structure according to any one of claims 1 to 3, wherein a thickness of said insulating material film is within the range of 150 nm to 3 μm.

6. (Previously Presented) The substrate structure according to any one of claims 1 to 3, wherein said insulating material film further contains phosphorus.

7. (Previously Presented) The substrate structure according to any one of claims 1 to 3, wherein an insulating material of said insulating material film is SiO_2 .

8. (Previously Presented) The substrate structure according to any one of claims 1 to 3, wherein on said insulating material film, a film comprising an insulating material is further laminated.

9. (Previously Presented) The substrate structure according to claim 8, wherein a thickness of the insulating material film comprising said insulating material is within the range of 20 nm to 3 μm .

10. (Previously Presented) The substrate structure according to claim 8, wherein said insulating material is SiO_2 .

11. (Currently Amended) A substrate structure which is a precursor to an electron source, and on which an electron-emitting device of the electron source is to be disposed, comprising:

a substrate; and

an insulating material film provided on said substrate,

wherein said insulating material film includes a plurality of metallic

oxide particles and has a vacancy provided among said plurality of metallic oxide particles, and said insulating material film has a surface on which an electron-emitting device of the electron source is to be disposed.

12. (Previously Presented) The substrate structure according to claim 11, wherein said insulating material film has a ratio of said vacancy in its cross section within the range of 5% to 10%.

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13. (Previously Presented) The substrate structure according to claim 11 or 12, wherein a thickness of said insulating material film is within the range of 150 nm to 3 μm .

14. (Previously Presented) The substrate structure according to any one of claims 11 or 12, wherein said insulating material film further contains phosphorus.

15. (Previously Presented) The substrate structure according to any one of claims 11 or 12, wherein an insulating material of said insulating material film is SiO_2 .

16. (Previously Presented) The substrate structure according to any one of claims 11 or 12, wherein on said insulating material film, a film comprising an insulating material is further laminated.

17. (Previously Presented) The substrate structure according to claim 16,

wherein a thickness of the insulating material film made of said insulating material is within the range of 20 nm to 3 μm .

18. (Previously Presented) The substrate structure according to claim 16, wherein said insulating material is SiO_2 .

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19. (Currently Amended) A substrate structure which is a precursor to an electron source, ~~and on which an electron-emitting device of the electron source is to be disposed~~, comprising:

a substrate;

a metallic oxide particle layer including a plurality of metallic oxide particles provided on said substrate; and

an insulating material film provided on said metallic oxide particle layer,

wherein said metallic oxide particle layer has a vacancy, and said insulating material film has a surface on which an electron-emitting device of the electron source is to be disposed.

20. (Previously Presented) The substrate structure according to claim 19, wherein said metallic oxide particle layer has a ratio of said vacancy in its cross section within the range of 5% to 10%.

21. (Previously Presented) The substrate structure according to claim 19

or 20, wherein said insulating material film further contains phosphorus.

22. (Previously Presented) The substrate structure according to claim 19 or 20, wherein an insulating material of said insulating material film is SiO_2 .

23. (Previously Presented) The substrate structure according to claim 11 or 19, wherein an average particle size of said plurality of metallic oxide particles is within the range of 6 nm to 60 nm.

24. (Previously Presented) The substrate structure according to claim 11 or 19, wherein an average particle size of said plurality of metallic oxide particles is within the range of 6 nm to 20 nm.

25. (Previously Presented) The substrate structure according to claim 11 or 19, wherein the size of said vacancy is within the range of 0.1 to 5 times an average particle size of said plurality of metallic oxide particles.

26. (Previously Presented) The substrate structure according to claim 11 or 19, wherein the size of said vacancy is within the range of 0.1 to 2 times an average particle size of said plurality of metallic oxide particles.

27. (Previously Presented) The substrate structure according to claim 11 or 19, wherein said metallic oxide particles are electronically conductive particles.

28. (Previously Presented) The substrate structure according to claim 11 or 19, wherein said metallic oxide particles are particles of SnO_2 .

29. (Previously Presented) The substrate structure according to any one of claims 1, 11 or 19, wherein said substrate is a substrate containing sodium.

30. (Previously Presented) The substrate structure according to claim 29, wherein said insulating material film is a sodium blocking film.

31. (Previously Presented) The substrate structure according to any one of claims 1, 11 or 19, wherein said insulating material film is a antistatic film.

32. (Previously Presented) An electron source, comprising a substrate and an electron-emitting device arranged on said substrate, wherein said substrate is the substrate structure according to any one of claims 1, 11 or 19.

33. (Currently Amended) The electron source according to claim 32, wherein said electron-emitting device is an electron-emitting device comprising ~~an~~ a conductive film including an electron-emitting portion.

34. (Original) The electron source according to claim 32, wherein a plurality of said electron-emitting devices are matrix-wired by a plurality of row-directional wirings and a plurality of column-directional wirings.

35. (Previously Presented) An image display apparatus comprising at least one electron-emitting device, an image display member for displaying images by irradiation of at least one electron from said electron-emitting device, and an envelope in which said electron-emitting device and said image display member are arranged, wherein a substrate where said electron-emitting device is arranged is a substrate structure according to any one of claims 1, 11 or 19.

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concluded

36. (Previously Presented) The image display apparatus according to claim 35, wherein said electron-emitting device is an electron-emitting device comprising a conductive film containing an electron-emitting portion.

37. (Previously Presented) The image display apparatus according to claim 35, wherein the at least one electron-emitting device includes a plurality of electron-emitting devices matrix-wired by a plurality of row-directional wirings and a plurality of column-directional wirings.
